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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563.651

01/06/2006

Dirkjan Bernhard Van Dam

NL030805

1972

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

ZIMMERMANN, JOHN P

ART UNIT

PAPER NUMBER

2861

MAIL DATE

DELIVERY MODE

07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,651

Applicant(s)

VAN DAM ET AL.

Examiner

John P. Zimmermann

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 06 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06 January 2006.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It was not executed in accordance with either 37 CFR 1.66 or 1.68.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Xh, Yh, Xp & Yp [Specification – Page 8, Line 10 and following]. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claim 9** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "substantially perpendicular" in **claim 9** is a relative term which renders the claim indefinite. The term "substantially perpendicular" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The limitation "in a direction" has rendered its use indefinite.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2861

8. **Claims 1-5 & 10** are rejected under 35 U.S.C. 102(b) as being anticipated by **Nonaka et al.**, (JP 08 086913 A).

a. As related to independent **claim 1**, Nonaka et al. teach a method for positioning a substrate and a patterning device at a patterning position with respect to each other (Nonaka et al. – Title & Abstract), at which position the patterning device is activated to apply a pattern to the substrate (Nonaka et al. – Abstract, Line 7), the method comprising the step of determining an actual relation between a patterning position of the substrate and the patterning device with respect to each other and a position of the pattern on the substrate (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 9).

b. As related to dependent **claim 2**, and further dependent **claims 3-5**, Nonaka et al. teach positioning the substrate and the patterning device at a predetermined [i.e. beforehand remembered] test position with respect to each other (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 13, Lines 3-7); applying a test pattern to the substrate by means of the patterning device (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 13, Lines 3-5); and performing a measurement in order to obtain a result relating to an actually obtained position of the test pattern on the substrate, wherein the actual relation [i.e. calculated amount] between a patterning position of the substrate and the patterning device with respect to each other and a position of the pattern on the substrate is determined on the basis of the result which is obtained by the measurement (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 14, Lines 8-11).

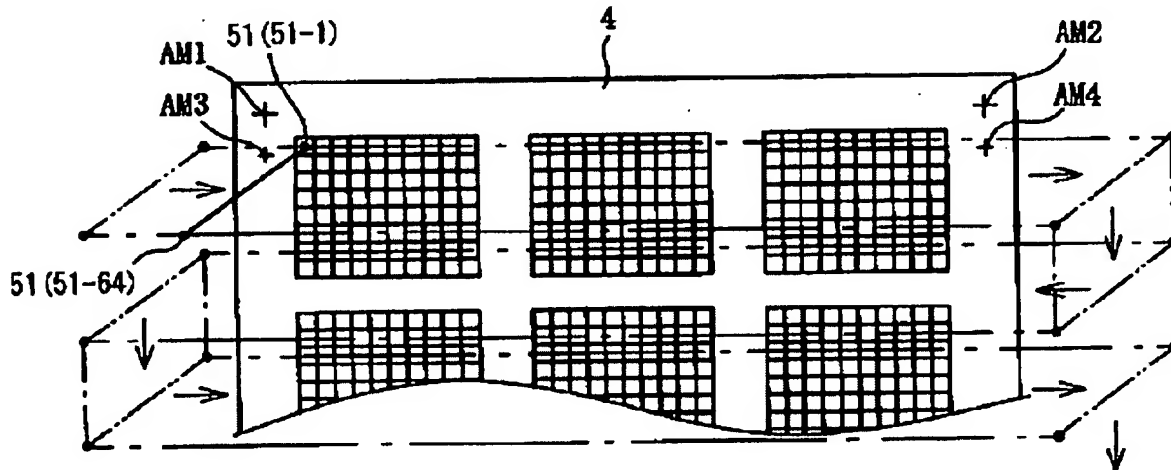
- c. Continuing with **claim 3**, Nonaka et al. teach the measurement is performed in an optical manner using pattern recognition (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 18, Lines 1-2).
- d. Continuing with **claim 4**, Nonaka et al. teach obtaining the offset [i.e. gap] between an actually obtained position of the test pattern on the substrate and a predetermined position of the test pattern on the substrate is measured (Nonaka et al. - Abstract & Machine Translation, Detailed Description, Paragraph 29, Lines 1-2), wherein the predetermined position of the test pattern on the substrate is determined on the basis of a predetermined relation between a patterning position of the substrate and the patterning device with respect to each other and a position of the pattern on the substrate, and wherein the actual relation [i.e. amount of amendment] between a patterning position of the substrate and the patterning device with respect to each other and a position of the pattern on the substrate is determined by correcting the predetermined relation for the offset as measured (Nonaka et al. – Abstract; Machine Translation, Detailed Description, Paragraphs 29 & 34).
- e. Continuing with **claim 5**, Nonaka et al. teach actually obtained position of the test pattern on the substrate is measured, and wherein the actual relation [i.e. comparison] between a patterning position of the substrate and the patterning device with respect to each other and a position of the pattern on the substrate is determined by linking the actually obtained position of the test pattern [i.e. pattern image] on the substrate as measured to the predetermined test position (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 34).

Art Unit: 2861

f. As related to dependent **claim 10**, Nonaka et al. teach the method applied for the purpose of printing displays, in particular PolyLED displays or liquid crystal displays (Nonaka et al. – Description of Prior Art, Paragraph 2, Lines 1-2), wherein the patterning device comprises a print head (Nonaka et al. – Abstract & Description of Prior Art, Paragraph 6, Line 2) having at least one nozzle (Nonaka et al. – Abstract & Description of Prior Art, Paragraph 7, Line 1) for releasing ink droplets (Nonaka et al. – Abstract & Description of Prior Art, Paragraph 9, Line 3).

9. **Claim 18** is rejected under 35 U.S.C. 102(e) as being anticipated by **Goto**, (US 2003/0063154 A1).

g. Goto teaches a printed display, in particular a PolyLED display or a liquid crystal display (Goto – Background, Paragraph 5, Lines 4-10), comprising at least two reference markers and a printed test pattern which is positioned outside an area having a functional pattern (Goto – Detailed Description, Paragraphs 78-79 & Figure 17, Reference #4 and #AM1 - #AM4, shown below) which serves for displaying an image.

FIG.17

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

Art Unit: 2861

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. **Claims 6-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nonaka et al.**, (JP 08 086913 A) as applied to **claim 1** above, and further in view of **Nakamura et al.**, (US 2003/0142167 A1).

- a. As related to dependent **claim 6**, Nonaka et al. teach the limitations of **claim 1** for the reasons above. While Nonaka et al. *do* teach using the actual relation between a patterning position of the substrate and the patterning device with respect to each other and a position of the pattern on the substrate is corrected for the rotation angle (Nonaka et al. –Machine Translation, Detailed Description, Paragraph 10, Lines 6-8 and Paragraph 30), Nonaka et al. *do not* specifically teach the step of determining a rotation angle. *However*, Nakamura et al. teach determining a rotation angle between an actual straight line of movement of the substrate [i.e. axis parallel to the main scanning direction] and the patterning device with respect to each other and a predetermined straight line of

Art Unit: 2861

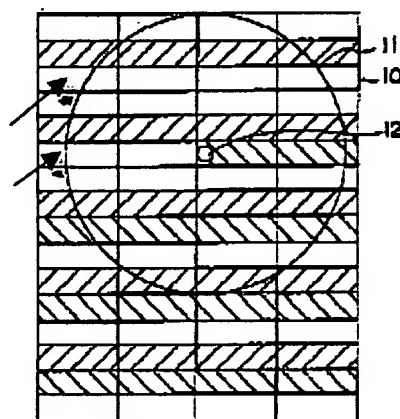
movement of the substrate and the patterning device with respect to each other

(Nakamura et al. – Detailed Description, Paragraphs 102 & 121).

b. As related to further dependent **claim 7**, the previous combination of Nonaka et al. and Nakamura et al. remains as applied to **claim 6**, additionally, Nonaka et al. teach determining the rotation angle in an optical manner using pattern recognition (Nonaka et al. – Abstract & Machine Translation, Detailed Description, Paragraph 18, Lines 1-2).

c. As related to further dependent **claim 8 & 9**, the previous combination of Nonaka et al. and Nakamura et al. remains as applied to **claim 6**, additionally, Nonaka et al. teach the predetermined straight line of movement of the substrate and the patterning device with respect to each other is indicated on the substrate [i.e. base material] by means of two reference markers [i.e. points] (Nonaka et al. – Machine Translation, Detailed Description, Paragraph 10, Lines 1-2; Paragraph 11, Line 6; Paragraph 24, Line 3; Paragraph 27, Lines 2-3 & Figure 2, Reference #10 & arrows, shown below).

【圖 2】



Art Unit: 2861

d. Continuing with **claim 9**, Nonaka et al. teach determining the rotation angle comparing the positions of the reference markers (Nonaka et al. – Machine Translation, Detailed Description, Paragraph 27, Lines 2-3), and Nakamura et al. specifically teaches determining the rotation angle by moving the substrate and the patterning device with respect to each other according to the actual straight line of movement [X – Direction] and comparing the positions of the reference markers in a direction perpendicular to the actual straight line of movement (Nakamura et al. – Detailed Description, Paragraph 120 and Figure 1, shown below).

Given the same field of endeavor, specifically a method of manufacturing and printing a substrate (color filter formation), particularly by ink ejection, it is apparent that one of ordinary skill in the art at the time the invention was made would have been motivated to combine the method of color filter formation with an ink jet patterning device as taught by Nonaka et al. with the specific inkjet ejecting method and apparatus as taught by Nakamura et al., in an effort to prevent difference in the thickness in a plurality of the

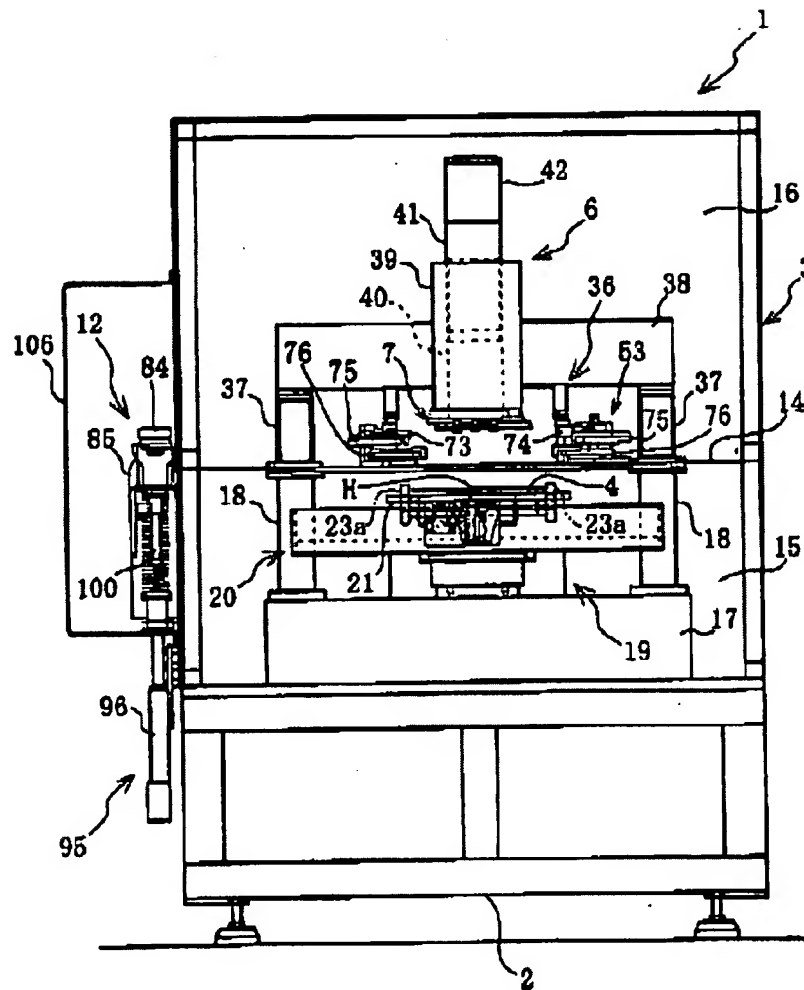
Art Unit: 2861

filter elements and equalize light transparency in a planar manner all while allowing the color filter to be formed in a common way at a reduced cost more efficiently (Nakamura et al. – Abstract).

13. **Claims 11-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nonaka et al.**, (JP 08 086913 A) as applied to **claim 1** above, and further in view of **Goto**, (US 2003/0063154 A1).

a. As related to dependent **claim 11**, Nonaka et al. teach the limitations of **claim 1** for the reasons above. While Nonaka et al. teach the method of accurately positioning a pattern on a substrate, they *do not* teach the specific device or apparatus as claimed. *However*, Goto teaches a patterning machine (Goto – Figure 1, Reference #1, shown below), suitable for carrying out the aforementioned method, comprising: a first receiving member (Goto – Figure 1, Reference #21, shown below) for receiving a substrate; a second receiving member (Goto – Figure 1, Reference #6, shown below) for receiving a patterning device (Goto – Figure 1, Reference #7, shown below) for applying a pattern to the substrate.

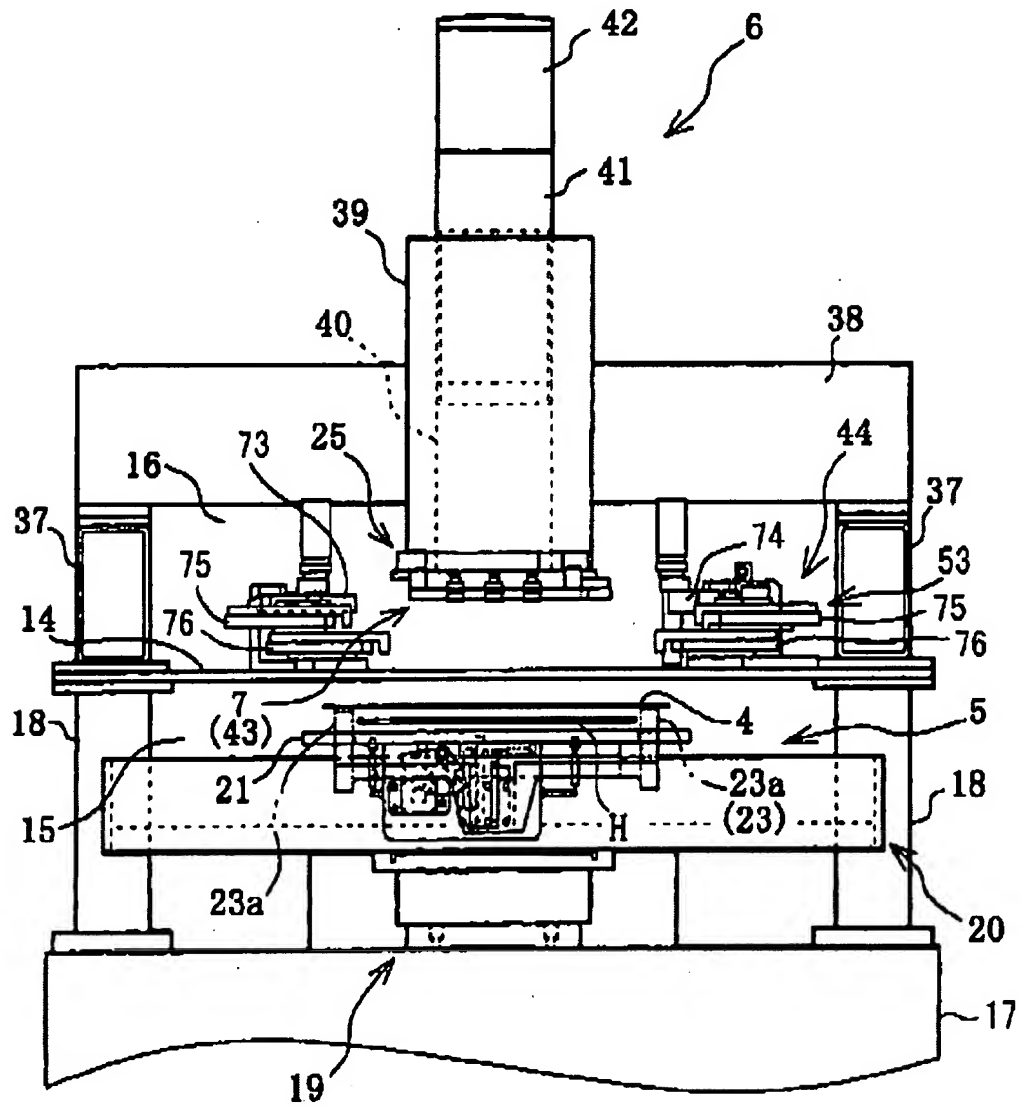
FIG. 1



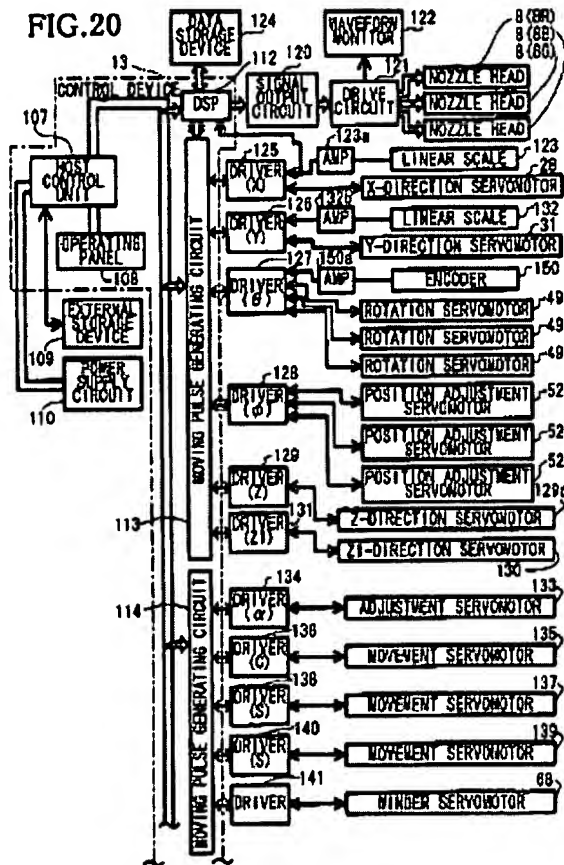
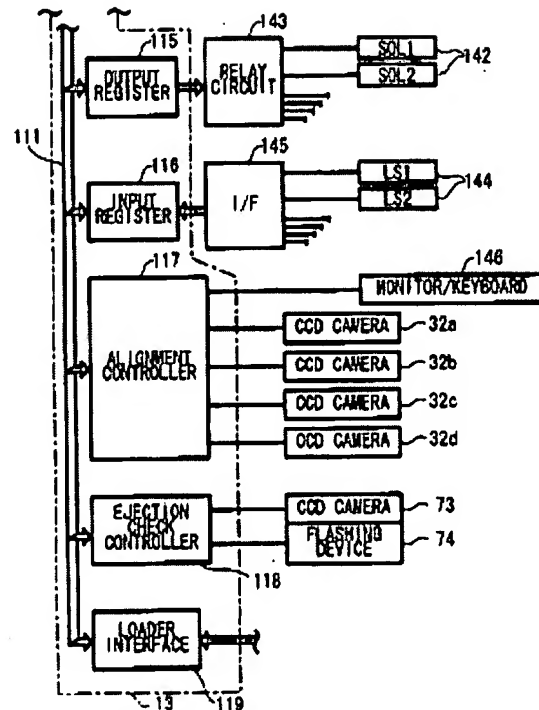
b. Continuing with **claim 11**, Goto's patterning also comprises: a moving means (Goto – Figure 4, Reference #5, shown below) for moving the substrate and the patterning device with respect to each other; a computer (Goto – Figure 20, Reference #13, shown below); and detecting means (Goto – Figure 21, Reference #32 (a-d), shown below) for detecting markers and patterns on the substrate, wherein the computer is

Art Unit: 2861

programmed such as to recognize the markers and the patterns and to determine positions of the markers and the patterns with respect to the moving means.

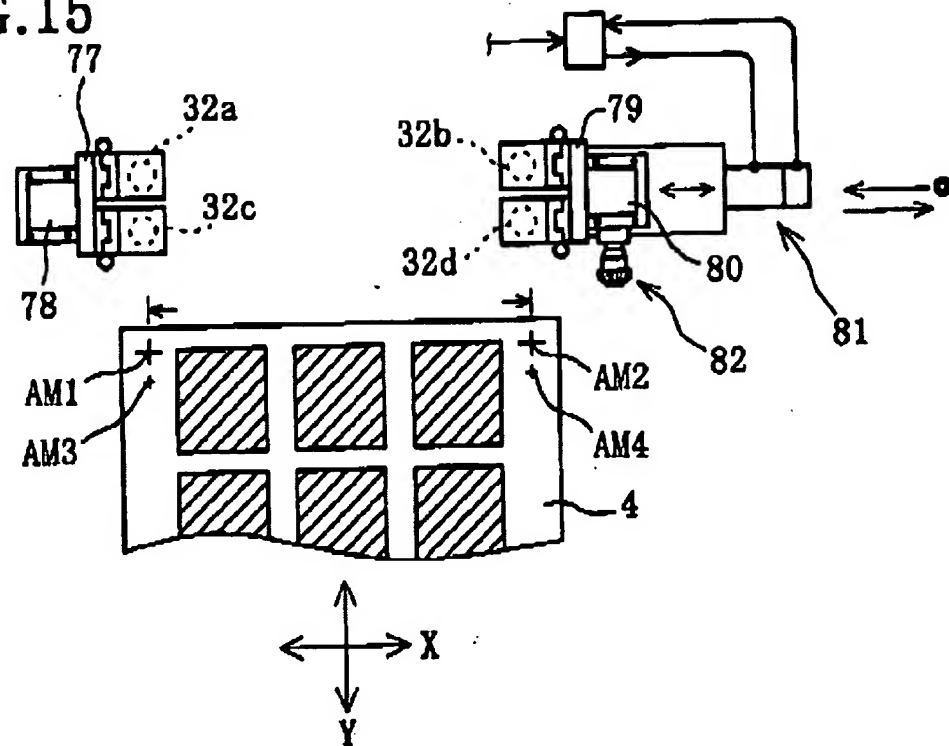
FIG.4

Art Unit: 2861

**FIG. 21**

c. Continuing with further dependent **claim 12**, the previous combination of Nonaka et al. and Goto remains as applied to **claim 11**, additionally, Goto teaches a patterning machine, wherein the detecting means comprise at least one camera (Goto – Figure 15, Reference #32 (a-d), shown below) for providing images of the substrate to the computer, and wherein the computer is programmed such as to capture the images from the camera, as well as to recognize the images (Goto – Detailed Description, Paragraph 52 & Figure 21, Reference #32 (a-d), shown above).

FIG. 15

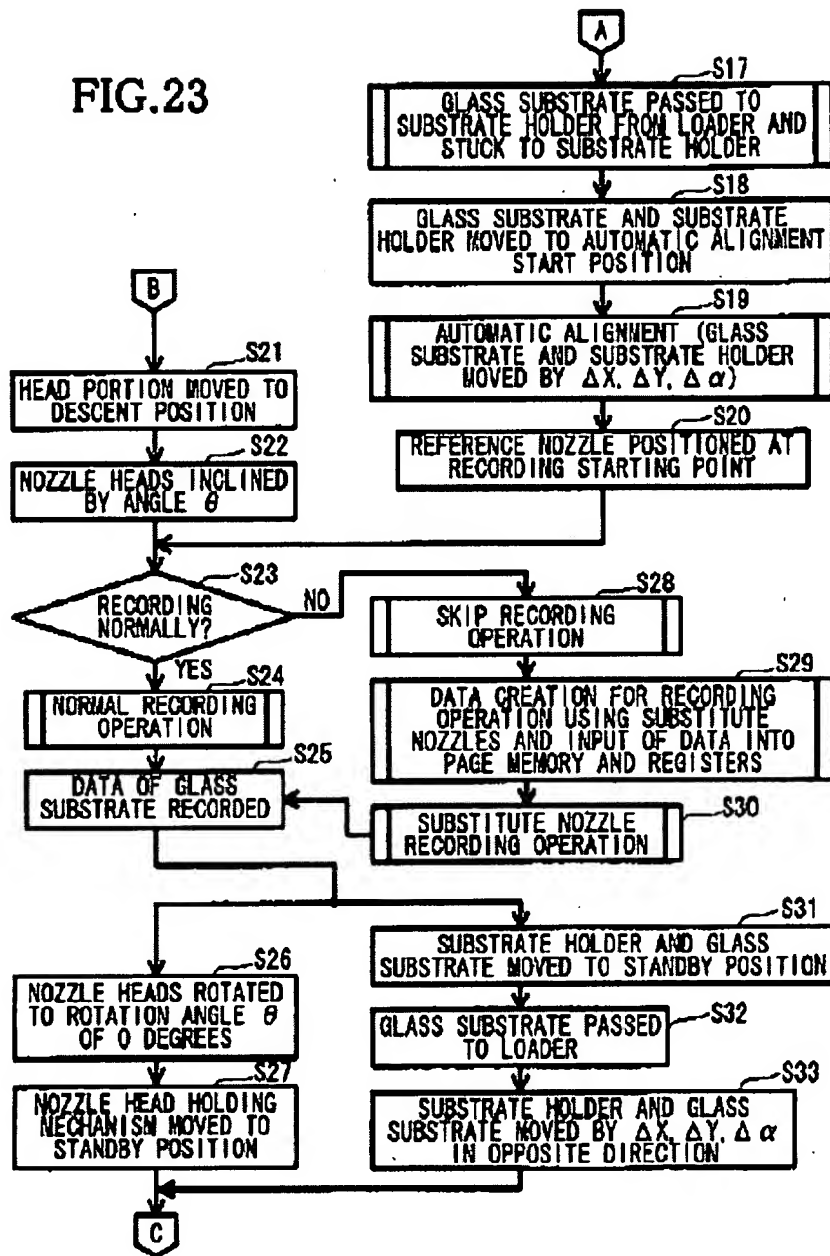


d. Continuing with further dependent **claims 13-15**, the previous combination of Nonaka et al. and Goto remains as applied to **claim 11 & 12**, additionally, Goto teaches a patterning machine, wherein the computer is programmed such as to perform an aligning process comprising the following steps: controlling the moving means (Goto – Figure 21, Reference #117, shown previously) such as to position the substrate and the patterning device at a predetermined test position with respect to each other; transmitting an activating pulse to the patterning device (Goto – Figure 20, Reference #113 & #114, shown previously) in order to apply a test pattern to the substrate; controlling the moving means (Goto – Figure 21, Reference #119 & Figure 20, Reference #125, #126, & #127 both shown previously) such as to position the substrate and the camera at the predetermined test position with respect to each other; and measuring an offset between

an actually obtained position of the test pattern (Goto – Detailed Description, Paragraph 52 & Figure 15, Reference #32 (a-d) & #4, shown above) and a predetermined position of the test pattern by means of the camera, using pattern recognition.

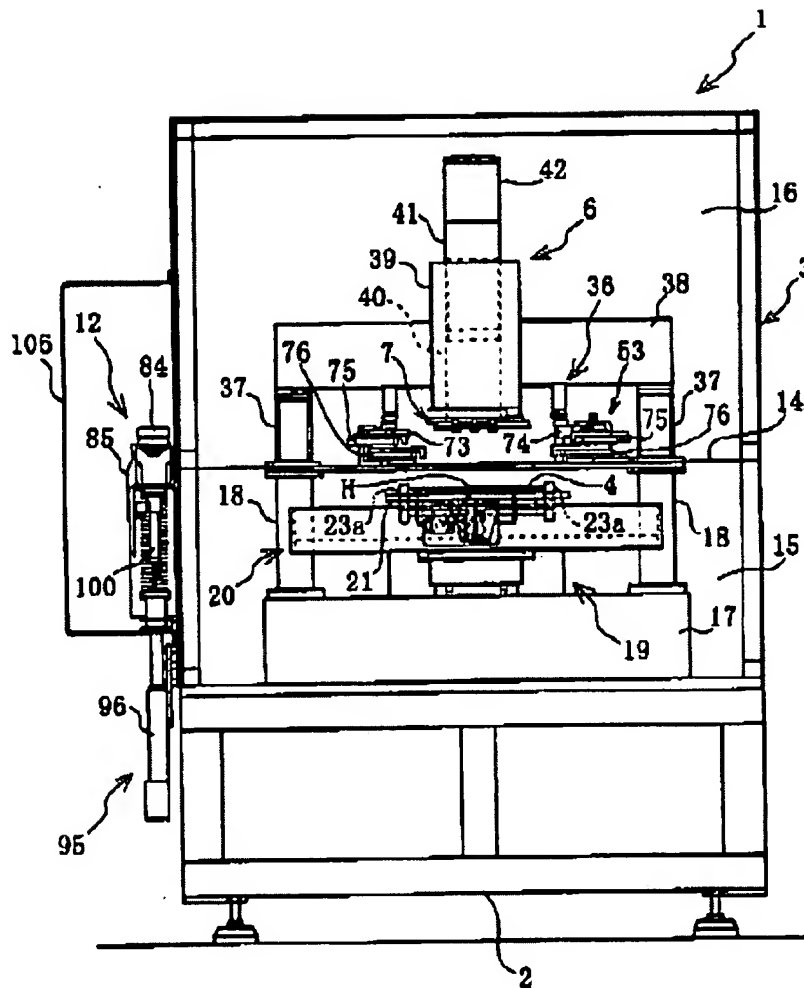
e. Continuing with **claim 14**, Goto teaches a patterning machine, wherein the computer is programmed such as to perform an aligning process comprising the following steps: controlling the moving means such as to position the substrate and the patterning device at a predetermined test position with respect to each other (Goto – Detailed Description, Paragraph 61); transmitting an activating pulse to the patterning device (Goto – Detailed Description, Paragraphs 74 – 79 & Figure 20, Reference #113 & #114, shown previously) in order to apply a test pattern to the substrate; detecting an actually obtained position of the test pattern on the substrate by means of the camera (Goto – Detailed Description, Paragraph 78, Lines 5-7), using pattern recognition.

f. Continuing with **claim 15**, Goto teaches a patterning machine, wherein the computer is programmed (Goto – Detailed Description, Paragraph 61, Lines 12-13) to perform the aligning process more than one time for one substrate (Goto – Detailed Description, Paragraph 61), and wherein the aligning process is alternated with a process during which a pattern is applied to the substrate by means of the patterning device (Goto – Figure 23. shown below).



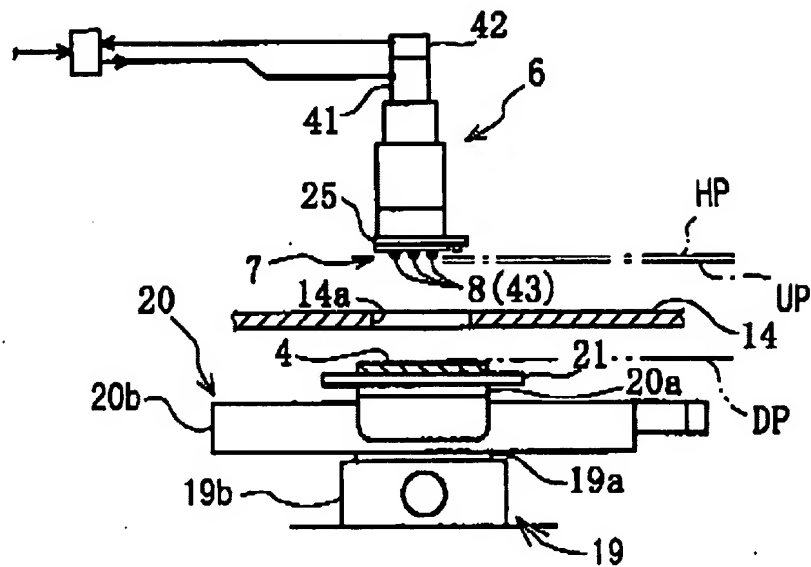
g. Continuing with further dependent **claim 16**, the previous combination of Nonaka et al. and Goto remains as applied to **claim 11**, additionally, Goto teaches the moving means comprise a X-Y table (Goto – Detailed Description, Paragraph 46, Lines 10-11; Paragraph 50, Lines 1-3 and Figure 1, Reference #19 & #20, shown below).

FIG. 1



h. Continuing with further dependent **claim 17**, the previous combination of Nonaka et al. and Goto remains as applied to **claim 11**, additionally, Goto teaches a patterning machine with a print head having at least one nozzle for releasing ink droplets (Goto – Detailed Description, Paragraph 55, Lines 1-9 and Figure 6, Reference #8 & #43, shown below).

FIG.6



Given the same field of endeavor, specifically a device or apparatus for manufacturing and printing a substrate (color filter), particularly by ejection of liquid ink droplets, it is apparent that one of ordinary skill in the art at the time the invention was made would have been motivated to combine the method of color filter formation with an ink jet patterning device as taught by Nonaka et al. with the specific liquid droplet patterning apparatus as taught by Goto, in an effort to extend the variable range of an ejection pitch (more robust device) as well as allow for extremely fine adjustments of alignment and supporting members (Goto – Summary, Paragraphs 15-16).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakurada (JP 2003-121635 A) teaches a color filter substrate manufacturing method with a similar X-Y table and printing device. Takemoto et al. (US 5,757,015 A) teach detecting

Art Unit: 2861

position marks, obtaining correction coefficients by marks printed on a substrate. Nakamura (US 2003/0179252 A1) teaches a head unit for an ejection apparatus and a method of manufacturing a display device. Bae et al. (US 2003/0189604 A1) teach a device and method for fabricating a display panel using ink-jet printing. Sugiyama (US 4,941,745 A) teaches an alignment device that produces an alignment mark, x-y stage controller, and measures offset.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Zimmermann whose telephone number is 571-270-3049. The examiner can normally be reached on Monday - Thursday, 7:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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MATTHEW LUU
SUPERVISORY PATENT EXAMINER